

The Distribution of Wheelhouses in the British Isles¹

By KENNETH HUTTON

A WHEELHOUSE ("horse-engine house") is here defined as a small building immediately attached to a barn or very close to it, which has at some time contained a horse-wheel to drive a mechanism within the barn, usually for threshing (Pl. 1).

Wheelhouses have recently been shown to be far more common than casual observation would suggest, and J. A. Hellen has recorded 276 still surviving in Northumberland.² Now, with the help of over fifty members of the Vernacular Architecture Group and others, observations first made in the north of England have been extended to cover the whole of the British Isles. These have shown the existence of over 1,300 wheelhouses still standing in England, Scotland, and Wales; the distribution of these is shown in fig. 1. Two are also known in Ireland,³ five in Denmark,⁴ three in Holland,⁵ and one in East Germany;⁶ there are also some in open-air museums.

The particular type of distribution map used in fig. 1 was suggested by a reading of Bellamy.⁷ It has the great advantage that this mapping is less sensitive to the diligence of the observer than the plotting of each individual wheelhouse found; for example, in the Cleveland district of North Yorkshire, the filling in of one grid square (10 km × 10 km) may represent as many as twenty of the wheelhouses found by Harrison,⁸ whereas elsewhere it may merely show that wheelhouses are not entirely absent from Suffolk.⁹

The general picture is an intensification of that mentioned by Atkinson,¹⁰ i.e. "wheelhouses mostly occur in NE. and SW. England"; but there are also considerable numbers in Cumberland,¹¹ Dumfriesshire,¹² and Perthshire, some in Herefordshire and Shropshire, and a scattering elsewhere. In fact, the only English

¹ I wish to thank E. J. Connell who first aroused my interest, R. W. Brunskill who encouraged a wider and more systematic study, and all those very many people who have so generously made available without reservation their own individual or collective observations so as to make this a truly co-operative undertaking.

² J. A. Hellen, 'Agricultural Innovation and Detectable Landscape Margins: The Case of Wheelhouses in Northumberland', *Agric. Hist. Rev.*, xx, 2, 1972, pp. 140-54.

³ Cahir, Co. Tipperary (R. Hellier 1966); Kilternan, Co Dublin (T. O'Neill 1972); N. Ireland had at least four covered horse-walks, all now destroyed (R. A. Gailey, W. A. McCutcheon).

⁴ Lundwall Nielsen, *Motor* (Copenhagen), 20, 1972, pp. 30-1.

⁵ As seen in 1973 in the neighbourhood of Wijchen, south of Nijmegen.

⁶ Tetzitz (54° 31' N., 13° 46' E.). ⁷ David Bellamy, *Bellamy on Botany*, BBC, 1972, pp. 68-9.

⁸ Anne and John K. Harrison 'The Horse Wheel in North Yorkshire', *Bulletin No. 8 of Cleveland and Teesside Local History Society*, March 1970, pp. 13-23; *Industrial Archaeology*, x, 3, 1973, pp. 247-65, 337-9.

⁹ S. J. Colman, TL 823691, TL 904384.

¹⁰ F. Atkinson, 'The Horse as a Source of Rotary Power', *Trans. Newcomen Soc.*, 33, 1960, p. 46.

¹¹ R. W. Brunskill, 'Design and Layout of Farmsteads in parts of Cumberland and Westmorland', *RIBA Neale Bursary 1963*, Manchester 1965, section 8.

¹² Sixty-two examples known to G. D. Hay, R.C.A.H.M., Scotland.

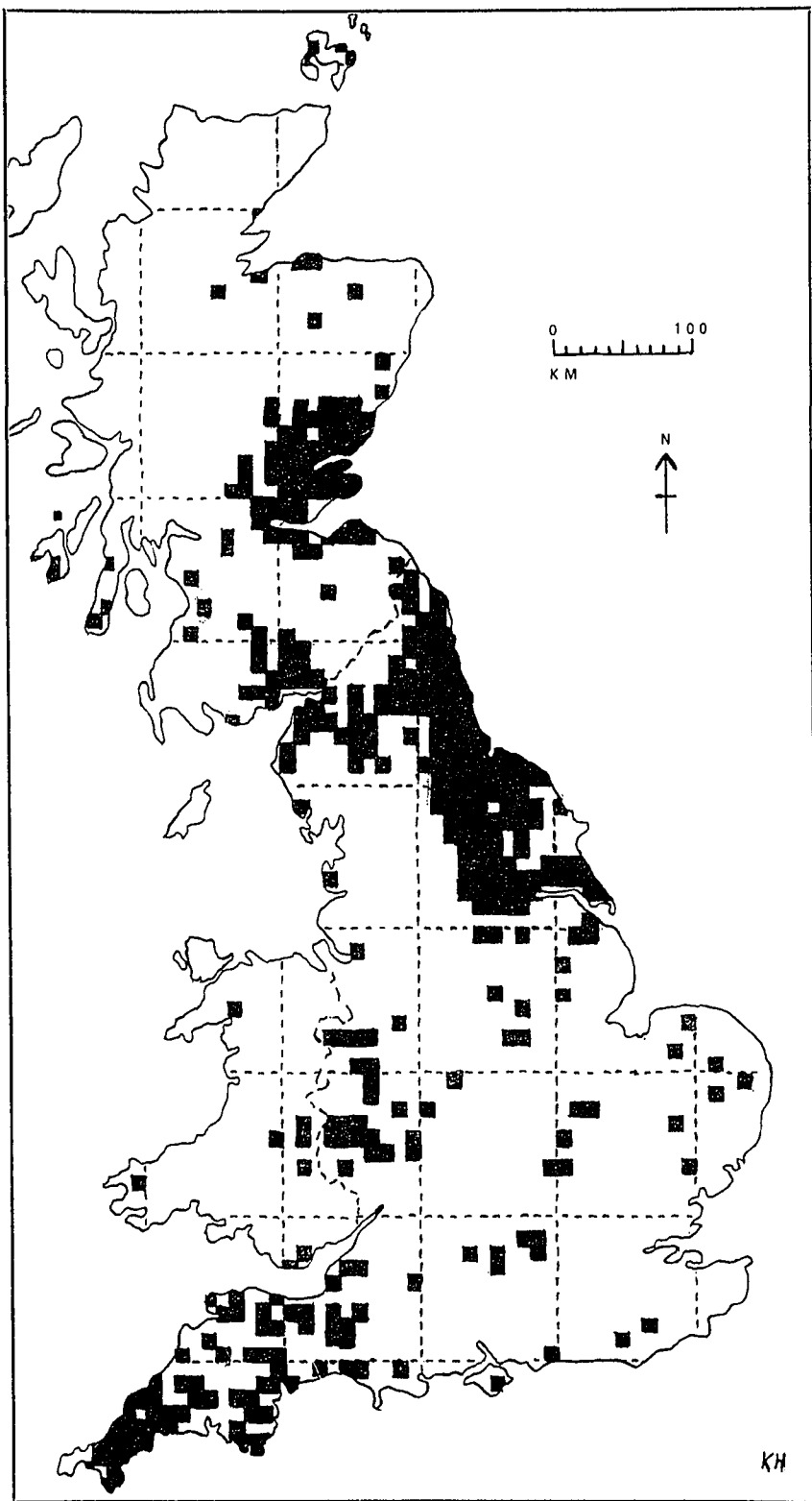


FIG. I

Distribution of horse-engine houses existing in Great Britain in 1973. National grid lines are shown at 100 km intervals; 10 km grid squares are shaded where they contain one or more horse-engine houses.

counties where none are known at present are Buckinghamshire, Cambridgeshire, Cheshire, Derbyshire, Essex, Gloucestershire, Hertfordshire, Middlesex, Northamptonshire, Oxfordshire, and Rutland. This prompts the question of why this should be so. To answer this question eight different hypotheses are put forward.

1. *Wheelhouses do exist elsewhere.* To a limited extent this is undoubtedly true, and I would certainly expect many more to be found in Scotland,¹ where Meikle invented the threshing-machine in 1785 in Clackmannanshire—a county which appears at present to be blank. Recently, Hellen subjected County Durham to his intense survey by 25-inch O.S. maps, and so increased the number of known wheelhouses there from forty to 200.² Similarly, a challenge to the two hundred keen-eyed members of the V.A.G. to disprove the hypothesis that thirty-one counties in England and Wales are devoid of wheelhouses has produced examples in twelve of these counties. Yet it seems most probable that the present general distribution map is not at fault because of the varying intensity of field-work in different regions. In a similar survey, the past twelve years of searching for buildings with cruck frames has increased the total number from 400 to 2,045 true crucks without very significantly altering the distribution.³

2. *Wheelhouses have been destroyed recently.* This is also true, and Hellen found that out of 575 Northumberland sites known in 1894, 299 “gingans” had been demolished or were unauthenticated by 1969.⁴ Similarly, Brunskill found that out of 227 threshing-machines powered by horse-engines in West Cumberland in 1852, only fourteen “gin-cases” survived in 1965.⁵ Anyone making a systematic local survey has to make a separate list of “wheelhouses destroyed” with their six-figure grid references.⁶

3. *Wheelhouses existed but were destroyed long ago.* It seems likely that most wheelhouses were built between 1800 and 1830, or at any rate between 1785 and 1851, after which time portable steam-threshers became the most up-to-date equipment.⁷ The latest known instances are the horse-engine house at Standen in the Isle of Wight, probably built between 1845 and 1853 (J. E. C. Peters), and two Cornish dates of 1857 and 1868.⁸ No later dates are known.

Now, between 1830 and 1832 occurred the “Captain Swing” breaking of 390 threshing machines, as shown in fig. II. This is largely the inverse of fig. I, i.e. no machines were broken in Scotland, in north-east England, or in Cornwall, where

¹ D. Bruce Walker has discovered over 200 wheelhouses, mostly in Angus and Fife, since this was written; twenty-eight extra squares have been added to the map (Fig. 1).

² J. A. Hellen, *Survey of 1972-3*.

³ J. T. Smith, ‘Medieval Roofs, a classification’, *Archaeol. J.*, cxv, 1960, pp. 138-9; N. W. Alcock, *Catalogue of Cruck Buildings*, Phillimore for Vernacular Architecture Group, 1973.

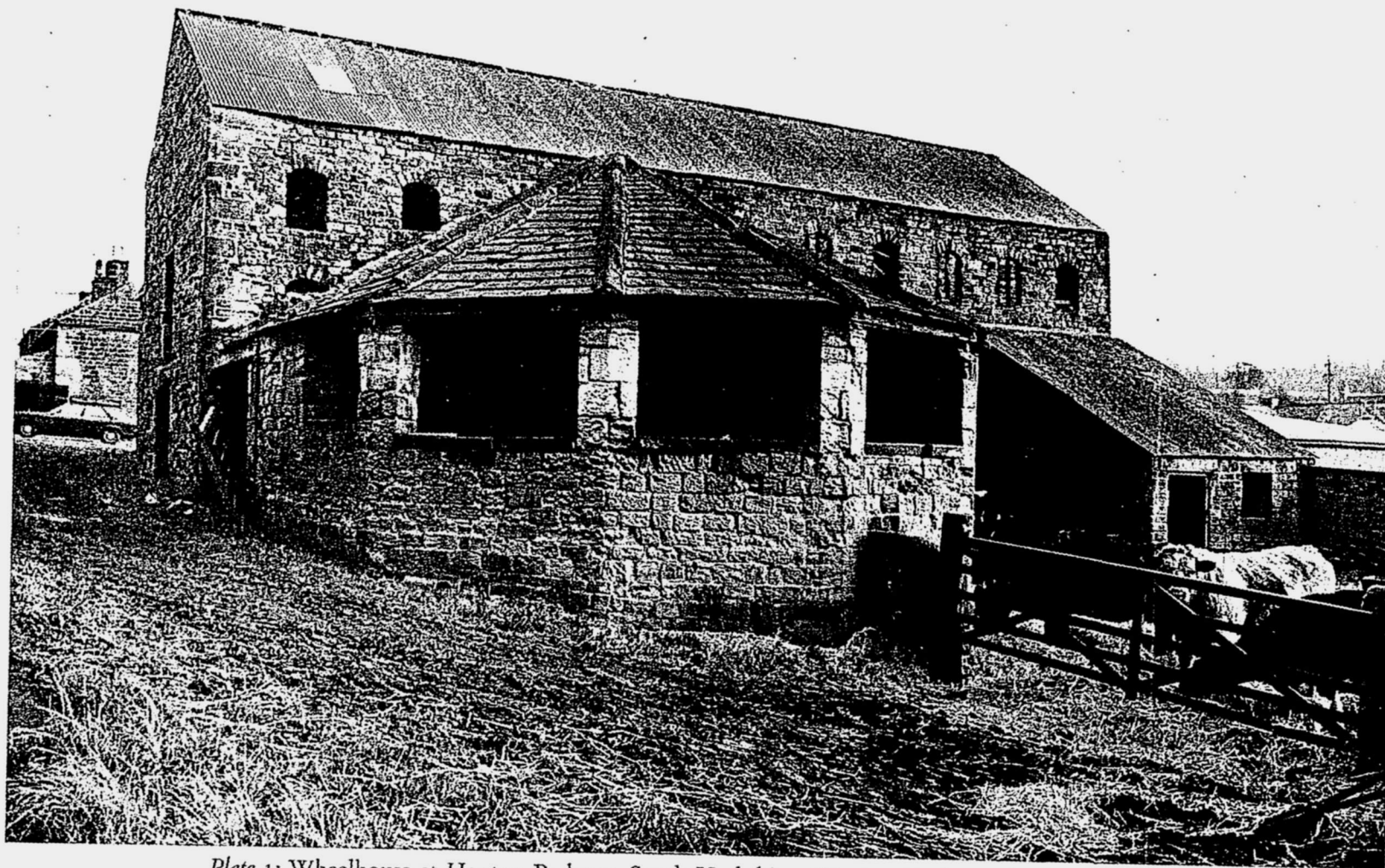
⁴ Hellen, ‘Agricultural Innovation...’, *loc. cit.*, p. 144.

⁵ Brunskill, *loc. cit.*

⁶ E.g., K. J. Allison, *East Riding of Yorkshire*.

⁷ Garratt’s portable horse-thresher, shown at the 1851 Great Exhibition, is on display at the Science Museum, London.

⁸ H. R. Hodge, ‘Horse Gears and Threshing Machines in Cornwall’, *Old Cornwall*, vii, no. 10, 1972, pp. 444-8; ninety-three examples known.



*Plate 1: Wheelhouse at Hooton Roberts, South Yorkshire, SK 483968, alongside the A630 road.
(Photo: National Monuments Record, Crown Copyright reserved).*

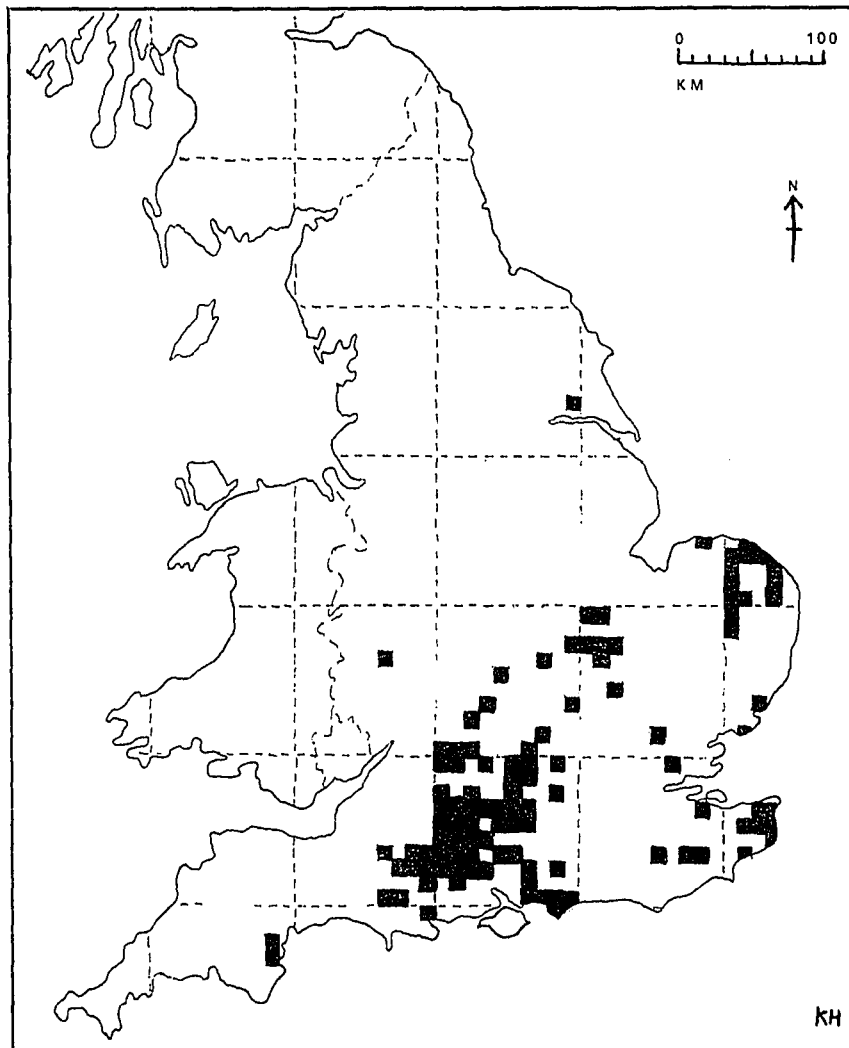


FIG. II

Threshing machines broken in 1830-32 during the "Captain Swing" riots. National grid lines are shown at 100 km intervals; 10 km squares are shaded where they contained one or more threshing machines recorded as destroyed in this period.

wheelhouses still abound today (about 150, 800, and 100 respectively). On the other hand, the heart of the Captain Swing riots was in Wiltshire and Berkshire (grid square SU); here forty-seven out of 100 small grid squares were affected, and by now only eight wheelhouses are still known.¹ This is only a suggestion, not proof; it is not known that the broken threshing-machines were connected to wooden horse-engines in wheelhouses which were also destroyed, but this seems probable as the portable iron horse-engine was not invented until 1841.

¹ E. J. Hobsbawm and G. Rudé, *Captain Swing*, 1969, pp. 312-58.

4. *Horse-engines occurred, but not in separate houses.* In Denmark, although horse-engine-houses are known, sometimes the horse-wheel occurs in an ordinary farm building;¹ this is also the general practice in South Africa,² and in Holland,³ and it has been observed in the West and North Ridings of Yorkshire.⁴ In Staffordshire the characteristic piece of machinery was the open *horse-walk*, twenty-eight examples of which have been recorded by Peters;⁵ this is well known in other parts of Britain,⁶ in Denmark,⁷ in Sweden,⁸ in Poland, and Czechoslovakia,⁹ and in the United States.¹⁰ It might be suggested that in the drier or warmer parts of Britain the horse did not need a building as protection, but in fact it seems that it was the older-fashioned "overhead" wooden engine which needed the protection.

5. *Horse-engines were not needed because other cheap power was available.* In Wales and in Ireland water-power was abundant, and wheelhouses are uncommon;¹¹ but in Scotland and in Northern England, although water-and wind-power were used for threshing so also was horse-power.¹² East of a line from Portland Bill to the Humber it looks as if agricultural labourers were the most abundant source of power, as they did not have alternative sources of employment in industry, and so their wages remained low.¹³

6. *In the South-West, the shortage of manpower on the coast during the Napoleonic Wars encouraged the building of wheelhouses.*¹⁴ This contemporary reference might well account for Cornwall and Devon, as well as Dorset.

7. *Wheelhouses occurred only where roof-coverings other than thatch were available, i.e. slate, stone flags, imported pantiles, because "horse-engines produced threshed straw which was useless for thatching", presumably because it was broken, or shorter, or in disorder.*¹⁵

8. *Wheelhouses exist mostly in the Highland Zone.* Cyril Fox's "Highland Zone"¹⁶ is normally a region of pastoral farming, and so perhaps machine threshing was

¹ As in Frilandsmuseet, Farmstead from Lundager, Funen, Building no. 71; see *English Guide*; Kongevejen 100, Lyngby, Denmark, 1966.

² James Walton, *International Molinological Conference*, Arnhem, 1973.

³ Nederlands Openluchtmuseum, *Guide in English*, Arnhem, pp. 46, 57, 68, 70.

⁴ SE 153214, Toothill Hall (James Walton); NZ 716074, Castle Houses (Ashley Sampson).

⁵ J. E. C. Peters, *Development of Farm Buildings in Western Lowland Staffordshire up to 1800*, Manchester, 1971, p. 103.

⁶ Alwyn D. Rees, *Life in a Welsh Countryside* (Montgomeryshire), Cardiff, 1950; also Caithness, and islands of Coll, Islay, and Orkney.

⁷ Hjerl Hede Open Air Museum, Jutland, Denmark, Building no. 37.

⁸ Frilandsmuseet, Swedish farmstead from Halland, Building no. 54.

⁹ G. I. Lerche, National Museum of Denmark, Photoarchive.

¹⁰ R. M. Candee and A. L. Cummings, private communications.

¹¹ H. D. Gribbon, *History of Water Power in Ulster*, Newton Abbot, 1969.

¹² E.g. Blanchland, Northumberland, waterpowered thresher (Frank Atkinson).

¹³ E. L. Jones, 'The Agricultural Labour Market in England 1793-1872' *Econ. Hist. Rev.* 2nd. ser., xvii, 2, 1964, pp. 332-8. E. H. Hunt, 'Labour Productivity in English Agriculture 1850-1914', *ibid.*, xx, 2, 1967, pp. 280-93.

¹⁴ William Stevenson, *Agriculture of Dorset*, 1812, p. 144, quoted by Stuart Macdonald, The Progress of the early threshing machine, *Agric. Hist. Rev.*, xxiii, 1, 1975, p. 74.

¹⁵ Brunskill, *loc. cit.*

¹⁶ Cyril Fox, *Personality of Britain*, Cardiff, 4th edn, 1947, p. 88.

related to the extension of agriculture into a zone where it was less appropriate. But the Great Plain of York, full of existing wheelhouses, is not part of the Highland Zone.

Conclusions

- (a) The distribution of the wheelhouses still existing in this country is probably the result of many different factors as suggested above.
- (b) The building itself is highly characteristic,¹ between 6 and 10 metres wide, polygonal or circular or rectangular, almost always single-storeyed, and attached to a larger and higher building with a hole for a driving shaft linking the two. (Direct-drive machines have therefore been omitted, e.g. the housing for cider-presses in Worcestershire, for brickworks in Sussex,² and for water-pumping generally, e.g. Kent, Surrey, and Sussex.)³
- (c) The local names vary widely; covered gin-house, covered horse-walk, engine-house, gin-case, (gin-circle), gin-gan, gin-gang, gin-house, gin-race, (ginny-ring), (horse-course), (horse-gang), horse-gear, horse-mill, (horse-path), (horse-track), horse-walk, horse-wheel, round-house, track-shed,⁴ wheel-house, wheel-rig, wheel-shade, wheel-shed. Peters has therefore suggested the systematic name of 'horse engine house', for all except the bracketed versions which refer to an *uncovered* horse engine.⁵
- (d) The building materials are similarly characteristic of vernacular building styles before the railways transported standardized bricks and slates throughout the land. Thus, Sussex has thatch (in spite of hypothesis 7), North Riding has pan-tiles, Northumberland has some stone tiles; Devon has some granite pillars, Norfolk wooden poles or flint, Berkshire weatherboarding, East Riding brick, West Riding white magnesian limestone, Bedfordshire has ironstone, Northumberland sandstone, and Finchale in County Durham has beautiful hexagonal ashlar pillars taken from the adjacent Abbey.⁶
- (e) It is good to think that at least two of these horse engine houses will be preserved for posterity in open-air museums; one is preserved already at Beamish (Co. Durham, NZ 212549), and another will be at Singleton (Sussex, SU 875127). They will compare with the two at Cloppenburg (West Germany, 52° 51' N., 8° 4' E.), the one at Bokrijk (Belgium, 50° 57' N., 5° 30' E.), and the unbelievably tiny one at Arnhem (Holland, 52° 0' N., 5° 52' E.), which is only four metres wide, suggesting that the horses were very small, and were used very inefficiently.

¹ R. W. Brunskill, *Illustrated Handbook of Vernacular Architecture*, 1970, pp. 142-3.

² J. Hoare and J. Upton, *Sussex Industrial Archaeology—A Field Guide*, Chichester, Summer 1972, pp. 2, 27, 28.

³ Hugo Brunner and J. Kenneth Major, 'Water Raising by animal power', *Industrial Archaeology*, ix, 2, 1972, pp. 117-51.

⁴ G. A. Dean, *Essays on the Construction of Farm Buildings and Labourers Cottages*, Stratford, Essex, 1849: "Put the track shed on the N. side of the barn and open to the cool breeze."

⁵ J. E. C. Peters, Glossary, p. 208, in Brunskill, *Illustrated Handbook*...

⁶ A. R. Hare, Durham University Geography Department.